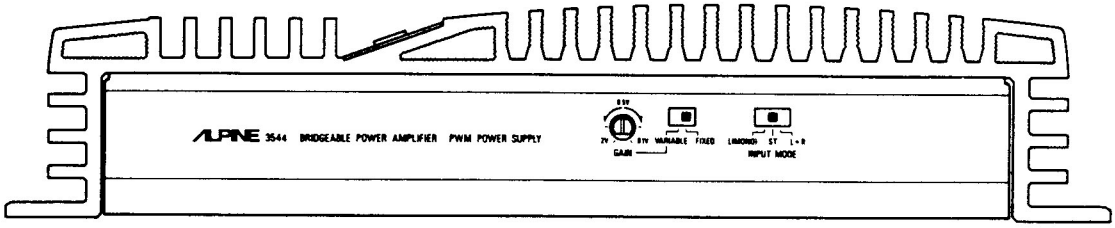
ALPINE SERVICE MANUAL

Bridgeable Power Amplifier



3544

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Specifications

<4ohms 2-channel stereo mode>

Power Output (20Hz~20kHz, 0.08%T.H.D)	120W / ch
Input Sensitivity (150W Power Output)	Fixed : 0.5V ± 20%
	Variable : 0.1V ± 30% 2.0V ± 30%
Zero Signal Current Drain	6A
Frequency Response (-1dB at 1 W Power Output)	20Hz~20kHz
Current Drain (150W Power Output)	65A
Channel Separation (1KHz at 150W Power Output)	50dB
Signal to Noise Ratio (IHF-A, at 150W Power Output)	98dB
Speaker Impedance	Fixed : 10kohms ± 20%
	Variable : 10kohms ± 20%

<2ohms 2-channel stereo mode>

Power Output (20Hz~20kHz, 0.8%T.H.D)	150W / ch
Current Drain (200W Power Output)	110A

<4ohms BTL mono mode>

Power Output (20Hz~20kHz, 0.8%T.H.D)	300W
Current Drain (400W Power Output)	110A

<General>

Fuse Requirement	30A × 2 (Battery)
Power Source	14.4V DC
Semiconductors	7 IC's, 47 Transistors, 19 Diodes,
	9 Zener Diodes
Dimension (W × H × D)	285 × 55 × 300mm
Weight	4.2kg

NOTE : Due to continuing product improvement, specifications and design are subject to change without notice.

Features

- **2/1 Channel Operation:**

  The 3544 can be used as a 2-channel stereo amplifier, producing 150W per channel into 4 ohms, or 200W per channel into 2 ohms. It can also be bridged for single channel operation to produce a conservative 400W into 4 ohms. This amplifier can produce all these rated output levels throughout the audio bandwidth (20 Hz to 20 KHz), even at the low battery voltage of 12.5V.

- **Status Motor:**

  This indicator illuminates green when the amplifier is on and operational. This light will turn orange if any protection circuitry is activated. It can be used as a troubleshooting aid should an installation problem develop.

- **Duo-Beta Feedback Circuitry:**

  Duo-Beta is a patented and technologically advanced form of negative feedback (error correction circuitry) . All amplifiers require some form of negative feedback to minimize distortion and stabilize the amplifier.
  Too much feedback, however, increases the transient intermodulation distortion (T.I.M.), decreases the amplifier slew factor, and reduces its musicality. The Duo-Beta circuitry supplies low negative feedback throughout the audio frequency and very high negative feedback at DC. This stabilizes the amplifier, removes DC offset, and offers excellent total harmonic distortion (T.H.D.) characteristics. It also provides low T.I.M., excellent slew factor, stability, and musicality.

- **No Current Limiting:**

  Current limiting circuitries used in conventional amplifiers may cause premature clipping and inferior transient response. Absence of current limiters in the audio section ensures low T.I.M., excellent transient response, and superb sonic quality.

- **S.T.A.R. Circuitry:**

  Alpine proprietary Signal Transit for Accurate Response circuit topology improves sonic properties by reducing interaction between different sections of the circuitry.

- **Optional Speaker Level Input Capability:**

  Using the optional Alpine accessory, 4311, this power amplifier can be used with high or standard power head units that do not have a preamp output. (Please see the CONNECTIONS section for details.)

- **Input Mode Selector:**

  This switch allows the user to specify the input signal entering the amplifier.

  a. Stereo Mode:
  Allows the right and left channel signals to reach their designated amplifier channels. This mode provides a stereo output or a center channel common information output (when used in the bridged configuration).

  b. L (MONO) Mode:
  Disables the right channel input connector and routes the signal through the left channel input to all sections of the amplifier. This mode can be used when a single (mono) signal is amplified (either in stereo or bridged operation).

  c. L+R Mode:
  Sums the right and left channel input signals and routes the result to all sections of the amplifier. It can be used in stereo or bridged operation to provide a summed (mono) output.

- **Pulse-Width Modulation (PWM) DC-to-DC Switching Mode Power Supply:**

  Provides excellent power output throughout the audio bandwidth (20 Hz to 20 KHz). Its soft clipping characteristics ensure superb transient response and musicality.

- **Fully Complementary, Discrete Output Circuitry:**

  For excellent reliability, superb sonic performance and high current capability to provide accurate transient response.

- **Continuously Adjustable Input Gain Control:**

  For matching the 3544 with components with a preamp output level other than 500 mV (the standard preamp output level of Alpine equipmant). Also used to obtain certain imaging characteristics or to compensate for different speaker efficiencies.

- **Extra Heavy Duty Construction:**

  Glass-epoxy printed circuit boards for durability and separate high current power transfer busbars for primary voltage and ground connections inside the amplifier.

- **OFC Internal Wiring:**

  Oxygen free copper is exclusively used for all internal wiring. This ensures optimum signal transfer and resistance to corrosion.

- **Gold-Plated RCA Input Connectors:**

  Provides the most accurate signal transmission and lowest possible loss. Gold-plated terminals are immune to signal deterioration caused by corrosion in the connectors that can develop over time.

- **Gold-Plated Speaker Output and Power Connectors:**

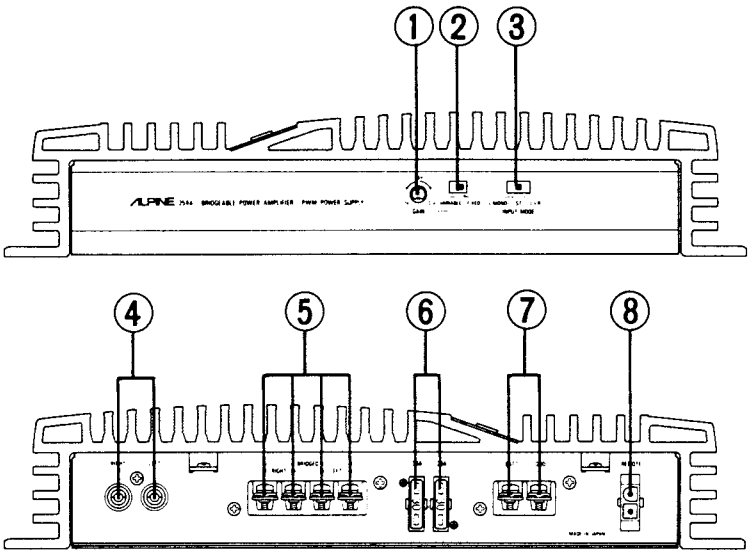
  For high definition, oxidization resistance, and minimal transfer loss.

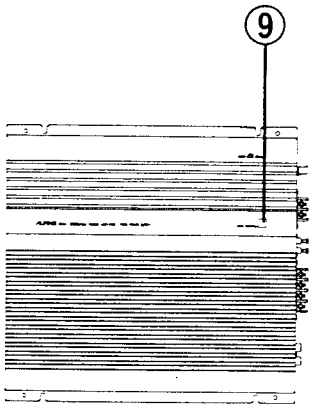
- **High Performance, Low Noise, Audiophile Quality Active and Passive Components.**

- **Capacitive / Inductive Power Supply Input and Output Filtering:**

  For low radio frequency interference (RFI) and immunity to system noises (such as alternator whine).

Switches And Terminals





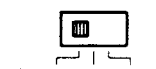
① Input Gain Adjustment Control
② Input Gain Selector Switch
③ Input Mode Selector Switch
④ RCA Input Jacks
⑤ Speaker Output Terminals
⑥ Fuses
⑦ Power Supply Terminals
⑧ Remote Turn-On Connector
⑨ Status Monitor

Switch Settings

- **Input Mode Selector Switch ③:**

a) Set to the "ST" position (center) when the amplifier is used as a 2-channel stereo system.

b) Set to the "L (MONO)" position when the amplifier is used for one channel of a stereo or bridged system.



c) Set to the "L+R" position when the amplifier is used for subwoofer system which uses the right channel and left channel signals summed.

- **Fixed/Variable Input Selector Switch ②:**

a) Set to the "FIXED" position when connecting the 3544 to other Alpine products. This position sets the input sensitivity to 500mV which corresponds to the preamp output of Alpine products.

b) Set to the "VARIABLE" position when connecting the 3544 to a non-Alpine product with an output voltage other than 500mV. This position should also be used when adjustment of input sensitivity is required to obtain certain imaging requirements or to compensate for different speaker efficiencies.

- **Input Gain Control ①:**

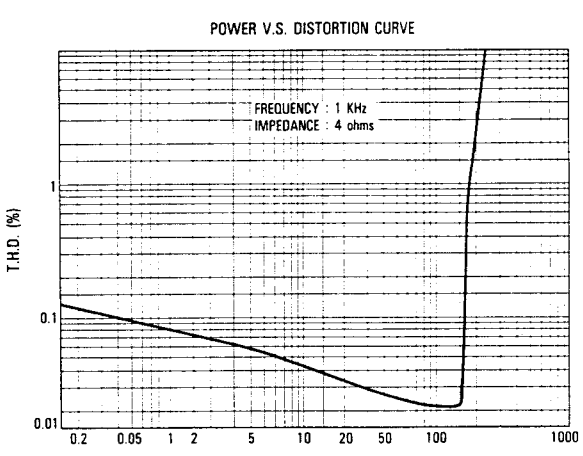
  After setting the Input Selector Switch ② to the "VARIABLE" position, set your head unit's volume control 1/4 of a turn down from the maximum output level, rotate the Input Gain Control ① with a #0 screwdriver and adjust the input gain to the point where there is maximum volume with no distortion.

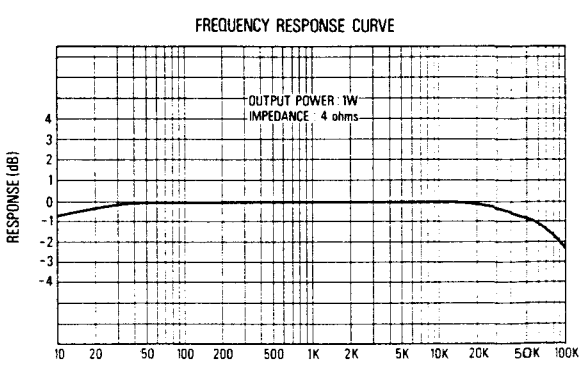
- **Status Monitor ⑨:**

  This indicator lights green when the power is on and the amplifier is operational. The 3544 has built-in protection circuitry. If, for some reason, this protection circuit is activated, the indicator turns orange. If this happens, turn the system off, find the cause of the problem and remedy the situation. This includes checking all your connections and wiring. If the indicator remains orange when the system is turned on, consult your authorized Alpine dealer.

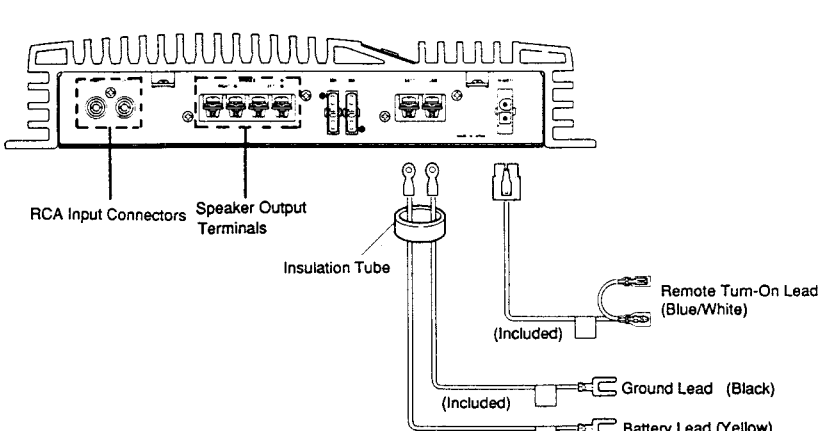
Note: The indicator will illuminate orange for a few seconds when the power is turned on as the amplifier's muting circuit is activated. This is normal.

Characteristic Curves





Connections



Always disconnect the negative (–) terminal of the vehicle's battery before beginning installation of electronic components. Insulation tubes for the speaker leads and the power supply leads are supplied with the 3544. Route the speaker leads and the power supply leads separately through these tubes.

1. **Speaker Output Terminals**
   Be sure to observe correct speaker connections and phasing. This includes maintaining the correct polarity; positive (+) and negative (–).

   CAUTION: Do not allow any non-insulated speaker leads to touch ground or each other.

2. **Ground Lead (Black)**
   Securely connect this lead to a clean, bare metal spot on the vehicle's chassis. Verify this point to be a true ground by checking for continuity between that point and the negative terminal of the vehicle's battery.

3. **Battery Lead (Yellow)**
   Connect this lead to the positive terminal of the vehicle's battery. Do not connect this lead to existing circuits in the vehicle's electrical system. If you need to extend this lead, use an Alpine 4331 extension cable. (6 AWG cable can also be used to extend this lead.) To protect your vehicle and amplifier, it is very important that this lead is fused with a 60 A fuse, as close to the battery as possiable.

4. **Remote Turn-On Lead (Blue/White)**
   Connect this lead to the remote turn-on lead of your head unit.

5. **RCA Input Connectors**
   The line-out leads of your head unit are connected here using RCA extension patch cords (Alpine 4410, 4422, or 4452). Be sure to observe proper channel designation: Left to Left, Right to Right.

INTERFACING A HEAD UNIT WITH NO PRE-AMP OUTPUTS:

The 3544 can be used with any high power or standard power head unit by using the speaker outputs of these head units. This includes Alpine, other aftermarket, and OEM factory-installed source units.

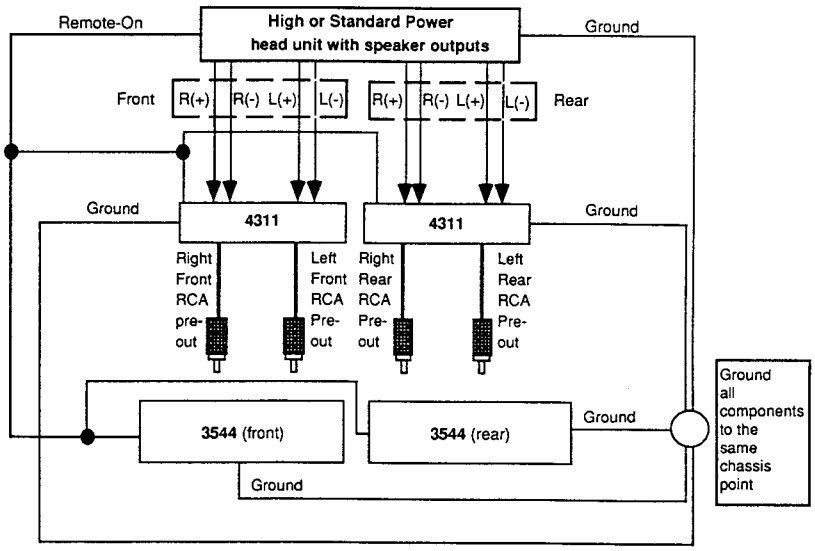
An Alpine 4311 speaker to pre-amp interface is needed to accomplish this. The 4311 features low impedance, balanced inputs for better isolation, better system noise immunity, and proper operation of the head unit controls such as balance and fader.

Connect the 4311 as shown below between the head unit and the 3544. Be sure to read Notes 1 through 3.

Note 1: Some head unit's speaker outputs may have an inherent turn on or turn off pop noise. Although the 4311 will prevent additional system noise usually associated with large system upgrades of this type, it cannot improve upon the design of the signal source. If there is a pop noise present in the head unit, it will be amplified through the system and may be objectionable. In such a case, the solution is to upgrade to an Alpine head unit.

Note 2: The 4311 can be mounted near the amplifier or near the head unit. However, running long RCA cables may increase chances of encountering a system noise problem. Therefore, mounting the 4311 close to the amplifier is preferable.

Note 3: To avoid introducing system noises such as alternator whine, ground all amplifiers, signal processors, 4311's and the head unit to the same point on the chassis.



Precautions

1. Improper wiring connections could cause damage to your vehicle's electrical system and/or the 3544 amplifier. Carefully follow the wiring instructions in this manual.

2. Connecting the battery lead (yellow) to the positive (+) terminal of the battery should be your last connection after all other connections have been made.

3. Due to the high power output of the 3544, it is important that all connections are clean and well secured to prevent damage to the amplifier and/or vehicle.

4. Be sure that the 3544 is mounted in a way that will allow for free air circulation and heat dissipation.

5. When changing fuses, be sure to replace the old fuse with one of the same amperage. Use of improper fuses can lead to serious damage to components.

Disassembly Instructions

1. Removal of Bottom Cover

(1) Remove four screws marked " ○ " as shown in Figure 1.

(2) The Bottom Cover will be removed by pulling out in the arrow direction as shown in Figure 1.

2. Removal of Main P.C.Board

(1) After removal of the Bottom Cover remove 33 screws marked " ● ". (Note: 2 Transistors are not shown in the Figure 2.) Then, the Main P.C.Board will be removed from Heat Sink together with Rear Cover and RCA/SP-Out/ Power P.C.Board as shown in Figure 2.

(2) Remove two screws marked " ■ " as shown in Figure 3.

(3) After removal of two pieces of Fuse, remove seven screws marked " ▲ " and the Hooks located at six places as shown in Figure 4.

(4) After the above procedures are completed, RCA/SP-Out/ Power P.C.Board is ready to be removed from Rear Cover together with the Main P.C.Board.

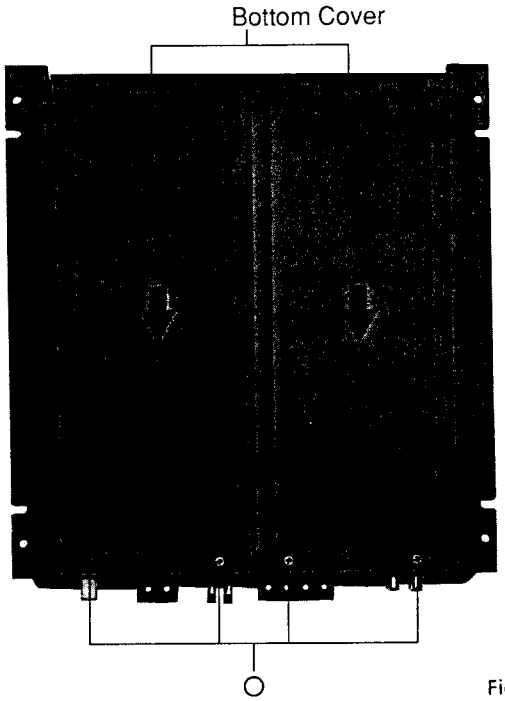


Figure 1

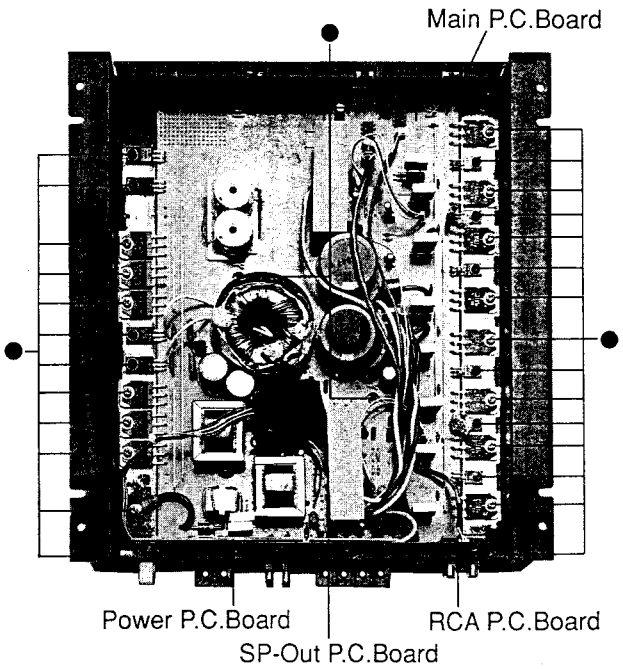


Figure 2

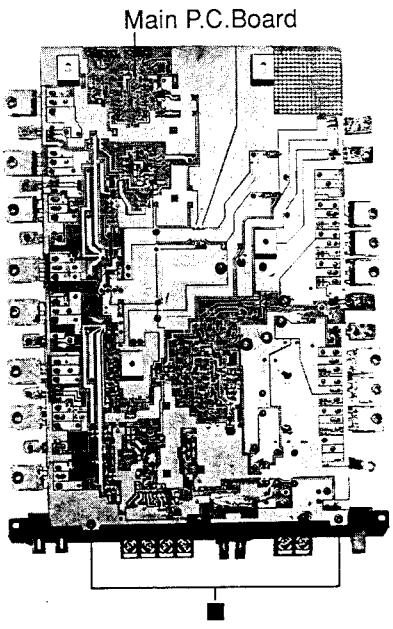


Figure 3

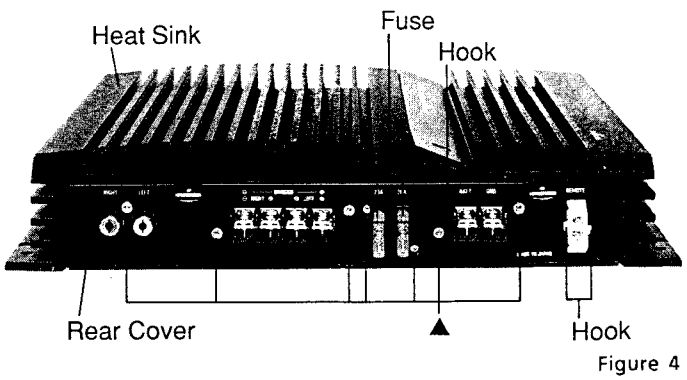


Figure 4

Adjustment Procedures

1. Power Supply Voltage Adjustment

(1) Connection

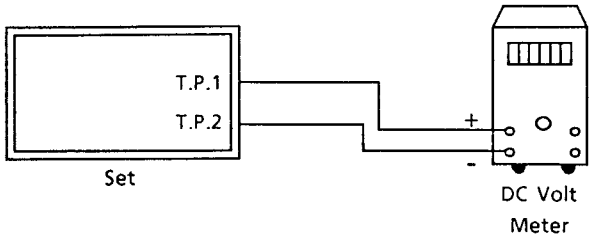


Figure 5

(2) Adjustment Procedures

Adjust VR801 to read 82V±0.5V on D.C. Volt Meter between T.P.1 and T.P.2.

2. Idling Adjustment

(1) Connection

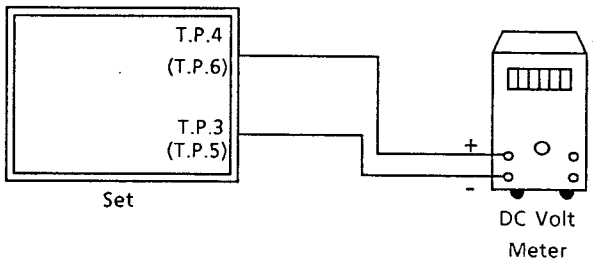
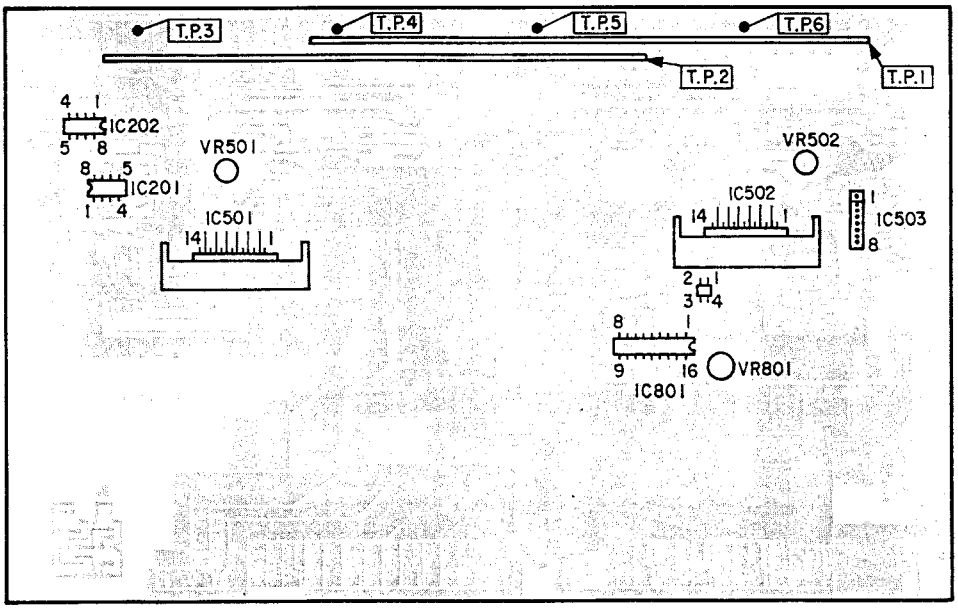


Figure 6

(2) Adjustment Procedures

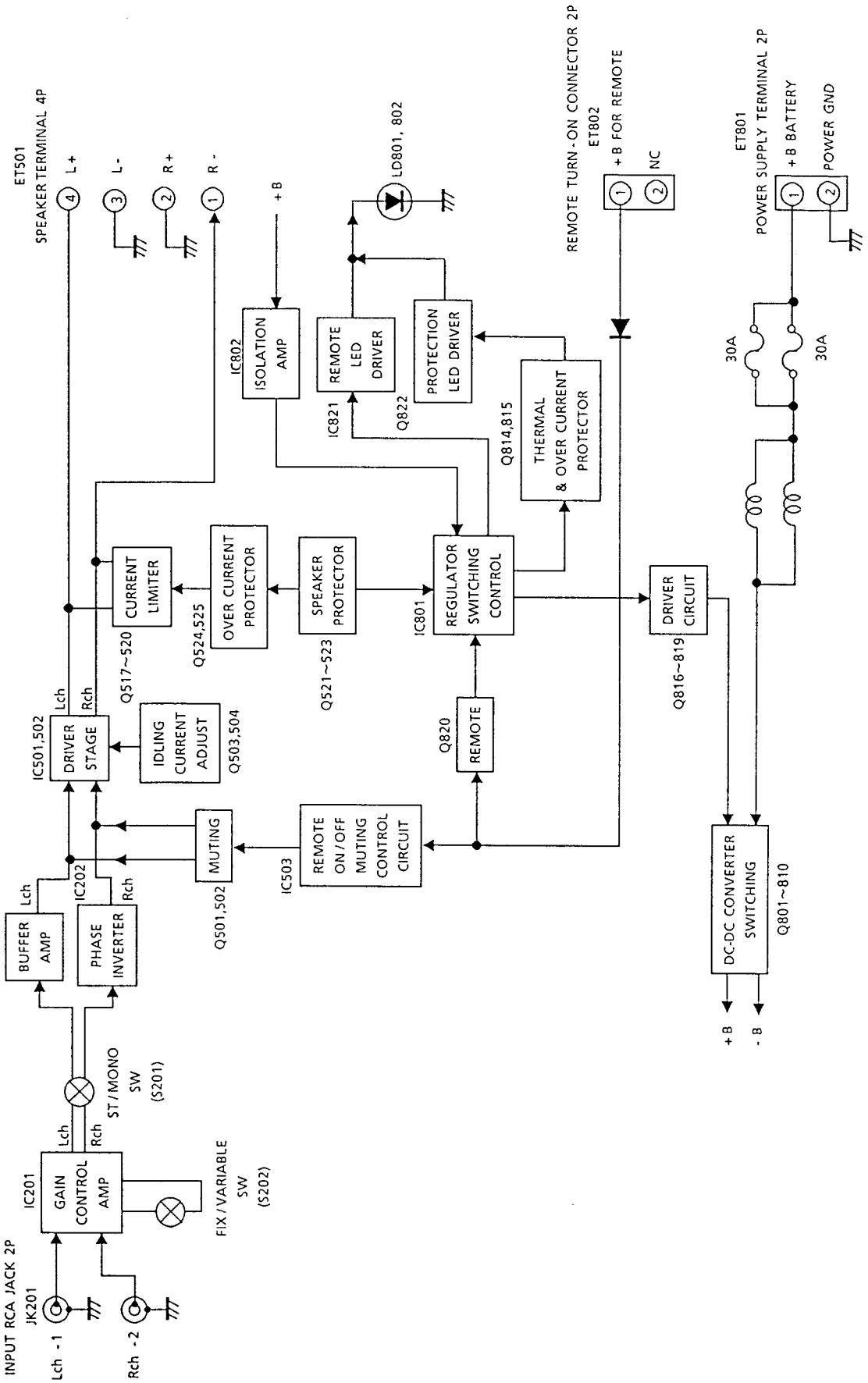
Adjust VR501(VR502) to read 3mV $^{+0.5mV}_{-0\,mV}$ on D.C. Volt Meter between T.P.3 (T.P.5) and T.P.4 (T.P.6).

Main P.C.Board

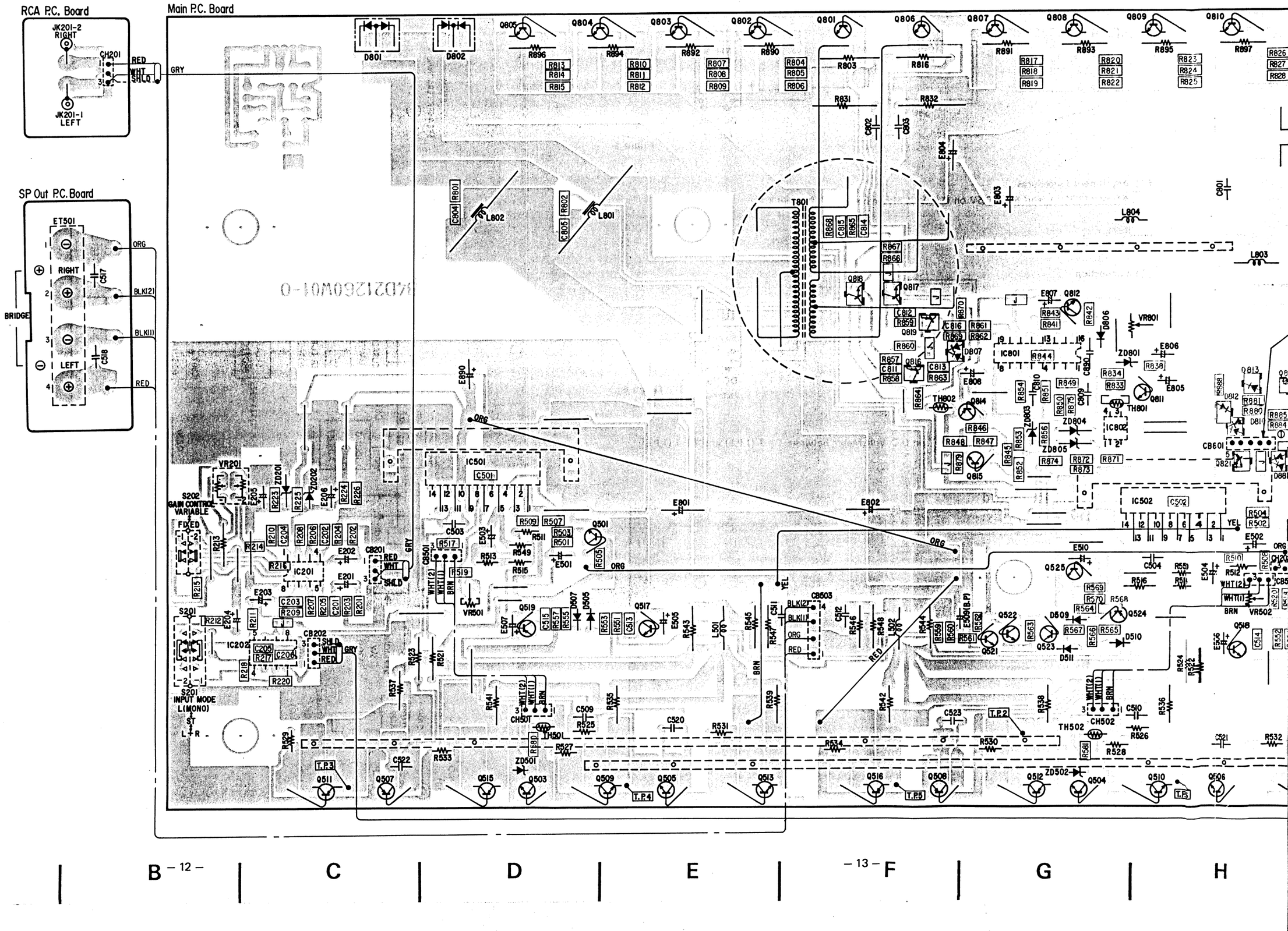


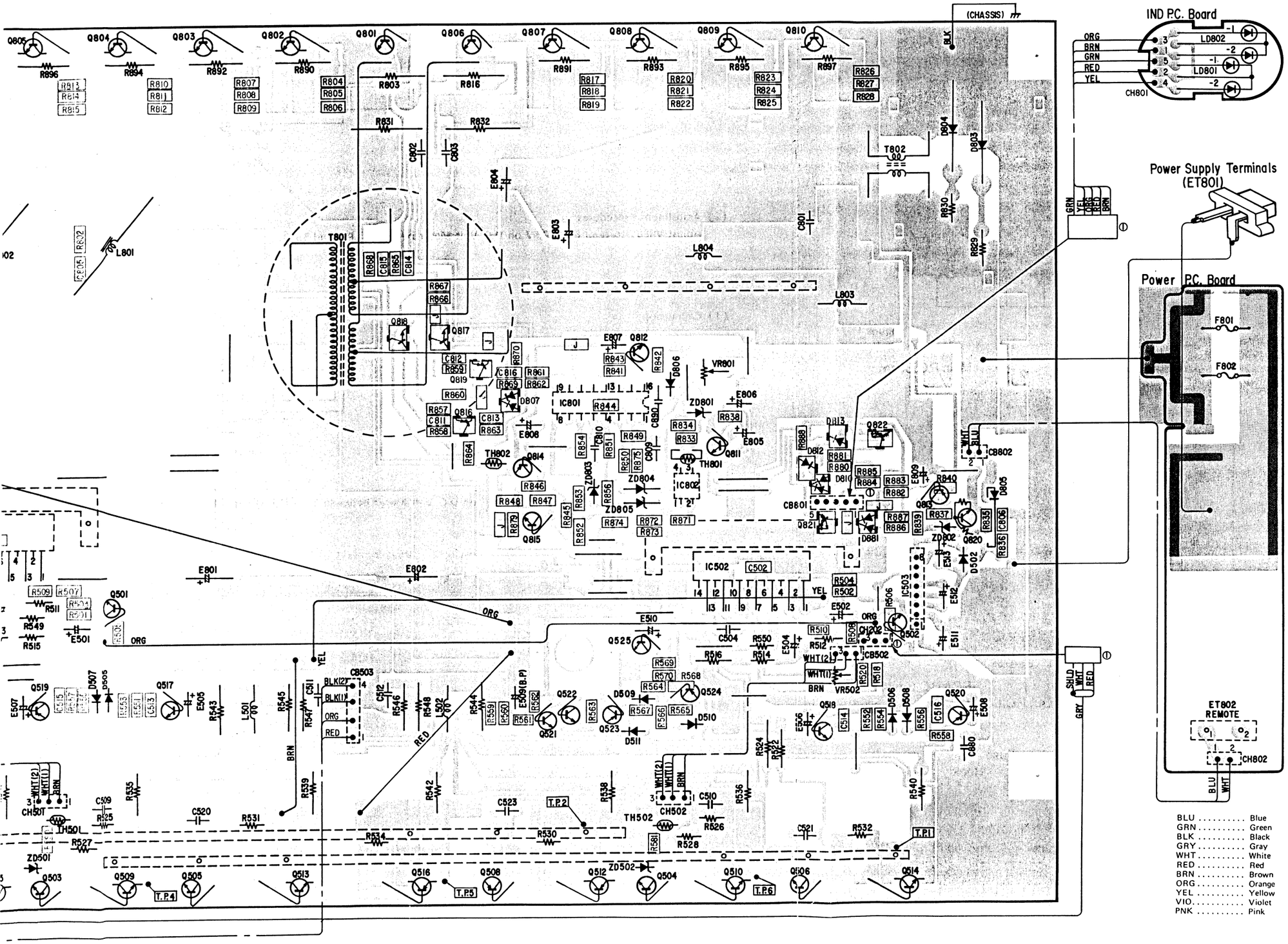
L

Block Diagram



Parts Layout on P.C.Boards and Wiring Diagram





BLU ..... Blue
GRN ..... Green
BLK ..... Black
GRY ..... Gray
WHT ..... White
RED ..... Red
BRN ..... Brown
ORG ..... Orange
YEL ..... Yellow
VIO ..... Violet
PNK ..... Pink

D E F G H I J K L

Schematic Diagram (Refer to reverse side for IC's and Transistors voltage values.)

IC	IC201 IC801	IC202 IC503	IC501 IC502	IC802
Transistor (Q)	Q814 Q812 Q815	Q813 Q820 Q816 Q817 Q818 Q819 Q501 Q502 Q504 Q801 Q806 Q802 Q807 Q803 Q808 Q503 Q804 Q809 Q805 Q810 Q505 Q521 Q509 Q507 Q506 Q511 Q522 Q513 Q811 Q524 Q517 Q525 Q822 Q515 Q523 Q514 Q519 Q516 Q518 Q520		

RCA P.C.Board

Main P.C.Board

JK201-1 L CH

JK201-2 R CH

JK201 RCA Input Jacks

IC201 µPC4570C GAIN CONTROL AMP

IC202 µPC4570C

BUFFER AMP

IC501 µPC1298V DRIVE STAGE

IC502 µPC1298V DRIVER STAGE

IC503 82675F02 REMOTE ON/OFF MUTING CONTROL CIRCUIT

PHASE INVERTER

Q501 2SD1996 MUTING

Q502 2SD1996 MUTING

Q505 2SC3421 Q509,513 2SC3182 POWER STAGE

Q506 2SC3421 2SC3182 POWER STAGE

Q507 2SAI358 Q511,515 2SAI265 POWER STAGE

Q508 2SAI358 2SAI265 POWER STAGE

Q517 Q519 2SC4086 2SAI561 CURRENT LIMITER

Q518 Q520 2SC4086 2SAI561 CURRENT LIMITER

Q521,522 Q523 2SC4038 2SAI561 SPEAKER PROTECTOR

Q524 Q525 2SB1076M 2SD1996 OVER CURRENT PROTECTOR

Q503 2SC3423 IDLING CURRENT ADJUST

Q504 2SC3423 IDLING CURRENT ADJUST

Q813 2SAI358 V.STABILIZER

Q811 2SC4038 V.STABILIZER

Q812 2SC4038 DROP VOLT DET

Q814 Q815 2SAI561 2SC4038 THERMAL & OVER CURRENT PROTECTOR

Q820 UN6211 REMOTE

Q816,819 Q817,818 2SAI036K 2SC2411K DRIVER CIRCUIT

Q801,806 Q802~805,807~810 2SC4024 2SD1065 DC-DC CONVERTER SWITCHING

IC801 µPC494C REGULATOR SWITCHING CONTROL

IC802 PS2401 ISOLATION AMP

ZD201 MTZI6C

ZD202 MTZI6U

ZD502 HZS3.6NB2

ZD501 HZS3.6NB2

ZD803 MTZ22D

ZD802 HZS3.0EBI

ZD801 MTZJC

ZD804,805 MTZ24D

D807 DAN202K

D502 ISSI76

D505,507,511 ISSI76

D509,510 ISSI76

D506,508 ISSI76

D801 FMG22S

D802 FMG22R

D806 ISSI76

VARIABLE FIXED

S201-1 S201-2 S202-1 S202-2

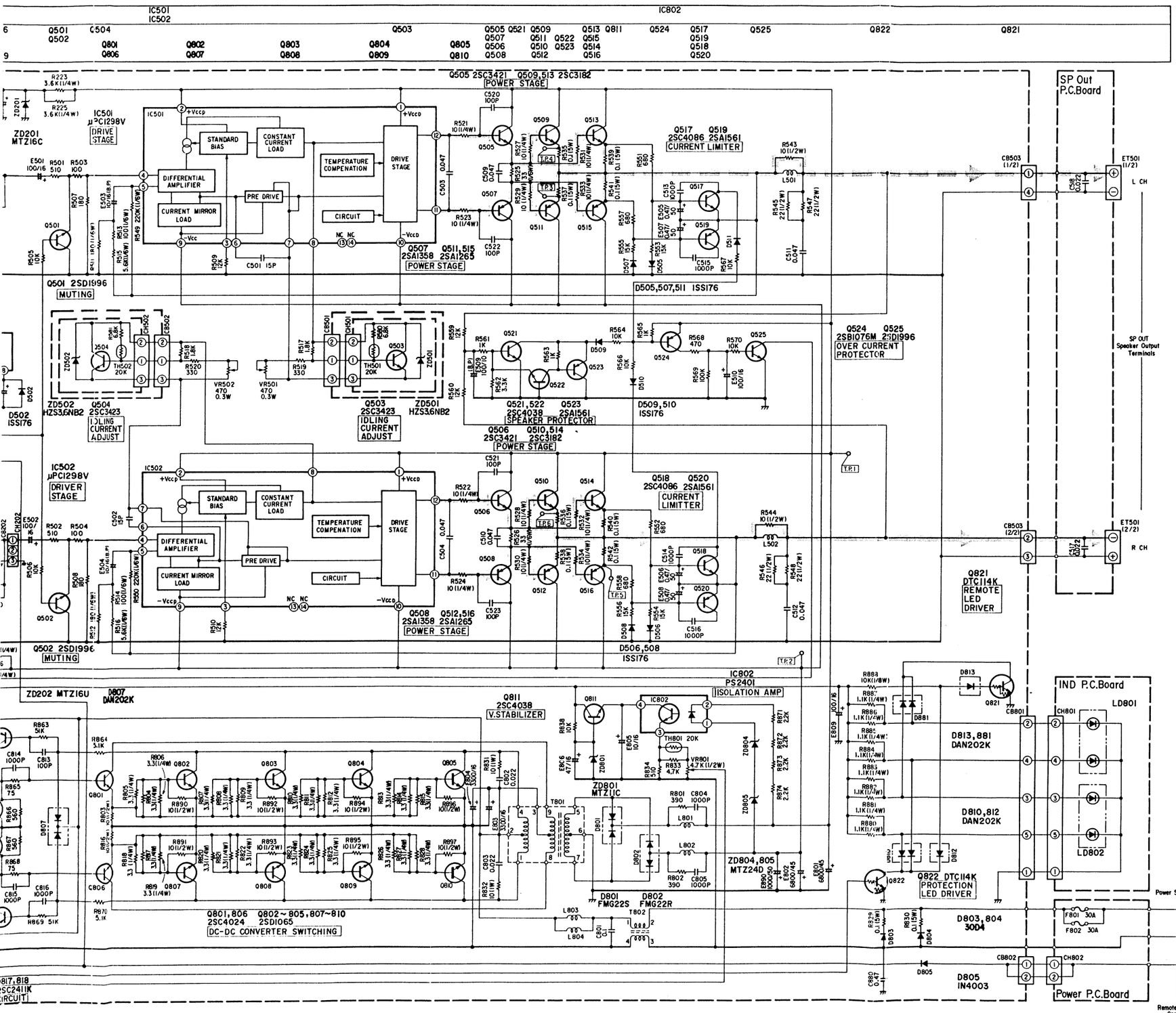
L501 L502

T801

L801 L802 L803 L804

TP1 TP2 TP3 TP4 TP5

/oltage values.)



NOTE:
1. All resistance values are in ohms. K= 1,000 M= 1,000,000
2. All capacitance values are in microfarads. P= 1/1,000,000

IC's And Transistors Voltage Values

- Secondary Ground

IC501

Pin No.	Voltage
1	41V
2	41V
3	35V
4	0.23mV
5	0.08mV
6	–40V
7	–1.9V
8	1V
9	–42V
10	–42V
11	–1.2V
12	0.94V

IC502

Pin No.	Voltage
1	41V
2	41V
3	35V
4	0.18mV
5	0.05mV
6	–40V
7	–1.9V
8	1V
9	–42V
10	–42V
11	–1.2V
12	0.96V

IC201

Pin No.	Voltage
1	38.6mV
2	4.4mV
3	5.4mV
4	–16.8V
5	5.3mV
6	4.5mV
7	38.8mV
8	16.5V

IC202

Pin No.	Voltage
1	–0.6mV
2	–0.2mV
3	0.06mV
4	–16.6V
5	0.55mV
6	0.52mV
7	0.52mV
8	16.4V

Pin Name / Transistor	E	C	B
Q501	0.26mV	0.11mV	–1.9V
Q502	0.18mV	0.08mV	–1.1V
Q503	–1.2V	1V	–2V
Q504	–1.3V	1V	–2V
Q505	0.95V	40.7V	0.3V
Q506	0.96V	40.9V	0.3V
Q507	–1.2V	–41.5V	–0.6V
Q508	–1.2V	–41.5V	–0.6V
Q509	–138mV	41V	0.3V
Q510	–139mV	41V	0.3V
Q511	–125mV	–41.8V	–0.6V
Q512	–130mV	–41.7V	–0.6V
Q513	–130mV	41V	0.3V
Q514	–130mV	41V	0.3V
Q515	–122mV	–41.7V	–0.6V
Q516	–125mV	–41.7V	–0.6V
Q517	–122mV	40.7V	–124mV
Q518	–129mV	40.7V	–127mV
Q519	–128mV	–0.6V	–121mV
Q520	–117mV	–0.6V	–116mV
Q521	0.02mV	40.9V	–3.9mV
Q522	–39mV	41V	0.03mV
Q523	41V	0.04mV	41V
Q524	40.7V	14mV	41V
Q525	14.2mV	134mV	0.03mV

- Primary Ground

IC503

Pin No.	Voltage
1	9.9V
2	5.8mV
3	29.3mV
4	11.4V
5	13.7V
6	–0.5V
7	13.7V
8	10.9V

IC801

Pin No.	Voltage
1	957mV
2	957mV
3	4V
4	21mV
5	1.9V
6	3.8V
7	5.7mV
8	14.3V

IC802

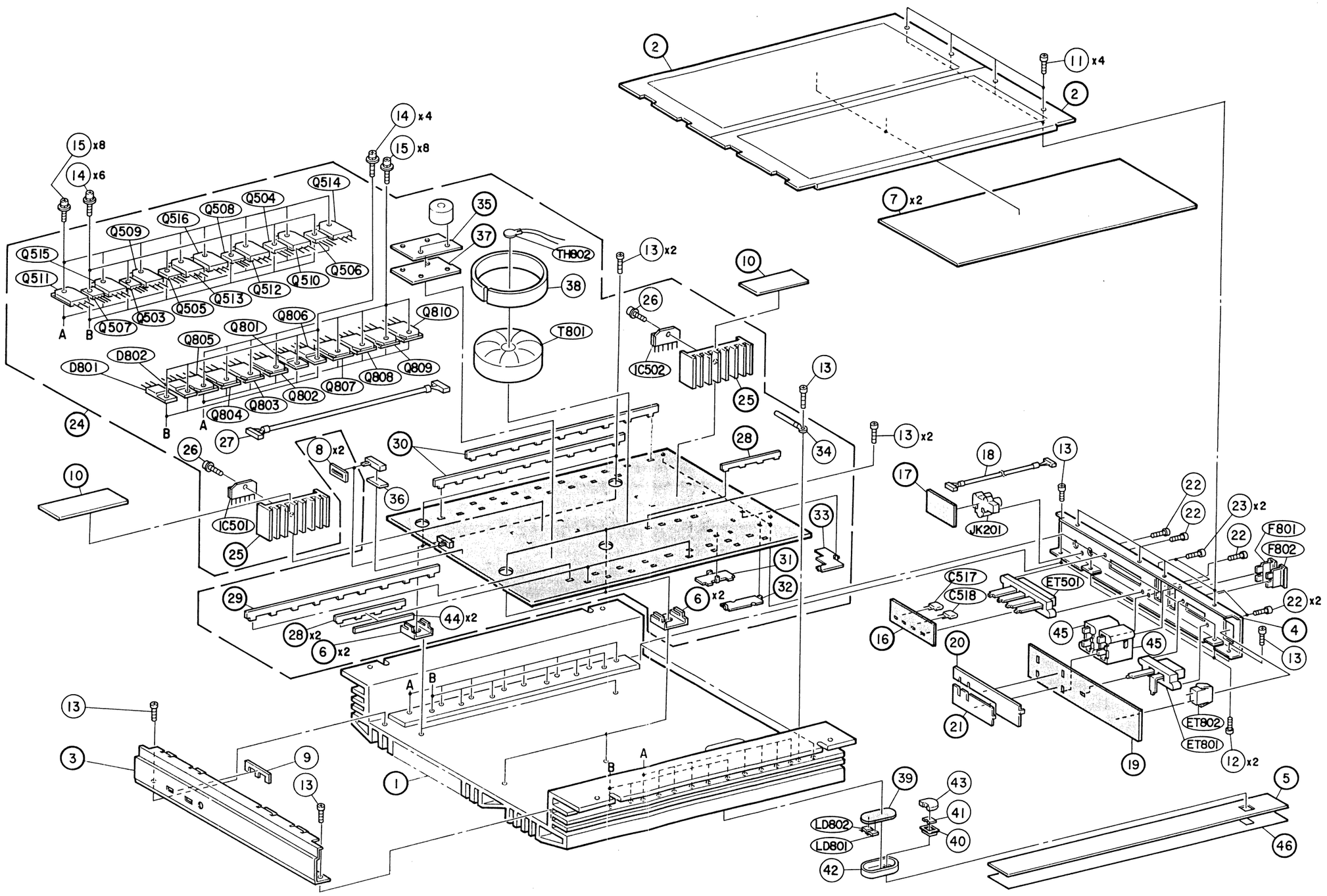
Pin No.	Voltage
9	267mV
10	267mV
11	14.3V
12	14.3V
13	5V
14	5V
15	5V
16	5.5mV

Pin Name / Transistor	E	C	B
Q801	0.11V	14.4V	0.15V
Q802	2mV	14.4V	0.09V
Q803	2mV	14.4V	0.09V
Q804	2mV	14.4V	0.09V
Q805	2mV	14.4V	0.09V
Q806	0.11V	14.4V	0.15V
Q807	1mV	14.4V	0.09V
Q808	1mV	14.4V	0.09V
Q809	1mV	14.4V	0.09V
Q810	1mV	14.4V	0.09V
Q811	10.2V	14.3V	10.9V

Pin Name / Transistor	E	C	B
Q812	0.68V	69.4mV	5.4mV
Q813	14.4V	14.3V	13.6V
Q814	5V	17.5mV	5V
Q815	86mV	5V	5.7mV
Q816	14.4V	1.6V	14.5V
Q817	5.8mV	159mV	–17.3mV
Q818	5.7mV	160mV	–150mV
Q819	14.4V	1.6V	14.5V
Q820	2.9V	5.2mV	114mV
Q821	5.8mV	155mV	7V
Q822	5.2mV	7.7V	17.3mV

- Measuring Condition
  1. Power Supply Voltage : DC14.4V.
  2. Measuring Meter : Digital Multi Voltmeter.
  3. Measuring Point Reference : Primary Ground. Secondary Ground.
  4. Measuring Conditions : No Signal and No Load.

Exploded View (Cabinet)



Cabinet Assembly Parts List

Symbol No.	Index	Part No.	Description		
8	3-C	43A20135W01	Cover, Switch		
9	5-C	75A20136W01	Cushion, Switch		
11	1-F	03S44205G50	Screw, Countersink (M3×6)		
12	5-G	03S44205G04	Screw, Pan (M3×5)		
13		03S63857F36	Screw, Tapping (M3×6)		
14		03S71252F04	Screw, W/Double Washer (M3×9)		
15		03S71252F05	Screw, W/Double Washer (M3×10)		
18	3-F	01T16296W01	Assy., Shield Wire		
22		03S40012G41	Screw, Tapping (M3×8)		
23	3-G	03S68555F02	Screw, Pan (M2×5.5)		
26		03C40121T29	Screw, W/Double Washer (M3×10)		
27	3-B	01T16287W01	Assy., Shield Wire		
34	3-E	01T16472W01	Assy., Wire GND		
36	3-C	43A13577W01	Spacer, Switch		
38	2-D	26A81610F02	Shield, CU		
40	5-F	36A13426W01	Lens, LED		
41	5-F	36A13427W01	Lens, Base		
42	5-E	15A13428W01	Lens, Holder		
43	5-F	15A13539W01	Lens, Guide		
44	4-C	14S81482F31	Insulator, Cover		
45	4-F	09T70751F01	Holder, Auto Fuse 1P		

Note: The parts without part numbers are not supplied.

Electrical Parts List

Resistors: Carbon resistors under 1/4 watts are not mentioned in the parts list, please confirm them by schematic diagram.
μF = microfarads, pF = picofarads

Symbol No.	Part No.	Description

Abbreviations

RES = Resistor	CAP. = Capacitor
C.F. = Carbon Film	ELY. = Electrolytic
M.F. = Metal Film	CER. = Ceramic
M.O. = Metal Oxide Film	MYL. = Mylar
M.P. = Metal Plate	TAN. = Tantalum
TR. = Transistor	POLY. = Polystyrol
TRANS. = Transformer	PP. = Polypropylene
CP. = Chip	PLT. = Polyethylene

Main P.C.Board

IC's

IC201	51T83403F01	μPC4570C
IC202	51T83403F01	μPC4570C
IC503	51T82675F02	82675F02
IC801	51T70759F01	μPC494C
IC802	51T70760F01	PS2401

Transistors

Q501	48T90183F04	2SD1996
Q502	48T90183F04	2SD1996
Q517	48T82909F01	2SC4036
Q518	48T82909F01	2SC4036
Q519	48T82757F01	2SA1561
Q520	48T82757F01	2SA1561
Q521	48T82758F01	2SC4038
Q522	48T82758F01	2SC4038
Q523	48T82757F01	2SA1561
Q524	48T81069F01	2SB1076M
Q525	48T90183F04	2SD1996
Q811	48T82758F01	2SC4038
Q812	48T82758F01	2SC4038
Q813	48T69177F01	2SA1358
Q814	48T82757F01	2SA1561
Q815	48T82758F01	2SC4038
Q816	48T63419F03	CP., 2SA1036K
Q817	48T63461F03	CP., 2SC2411K
Q818	48T63461F03	CP., 2SC2411K
Q819	48T63419F03	CP., 2SA1036K
Q820	48T90639F02	UN6211
Q821	48T62967F12	CP., DTC114K
Q822	48T62967F12	CP., DTC114K

Diodes

D502	48T58583F01	1SS176
D505	48T58583F01	1SS176
D506	48T58583F01	1SS176
D507	48T58583F01	1SS176
D508	48T58583F01	1SS176
D509	48T58583F01	1SS176
D510	48T58583F01	1SS176
D511	48T58583F01	1SS176
D803	48T68079F03	30D4
D804	48T68079F03	30D4
D805	48S40477U01	IN4003
D806	48T58583F01	1SS176
D807	48T63462F01	CP., DAN202K
D810	48T63462F01	CP., DAN202K
D812	48T63462F01	CP., DAN202K
D813	48T63462F01	CP., DAN202K
D881	48T63462F01	CP., DAN202K
ZD201	48T68699F48	Zener, MTZ16C
or	48T68697F56	Zener, HZS16EB3
ZD202	48T68699F48	Zener, MTZ16C
or	48T68697F56	Zener, HZS16EB3
ZD501	48T15003W14	Zener, HZS3.6NB2
ZD502	48T15003W14	Zener, HZS3.6NB2
ZD801	48T68699F36	Zener, MTZ11C
or	48T68697F43	Zener, HZS11EB2
ZD802	48T68697F03	Zener, HZS3.0EB1
ZD803	48T68699F59	Zener, MTZ22D
or	48T68697F66	Zener, HZS22EB3
ZD804	48T68699F63	Zener, MTZ24D
or	48T68697F71	Zener, HZS24EB4
ZD805	48T68699F63	Zener, MTZ24D
or	48T68697F71	Zener, HZS24EB4

Capacitors

C201	08S53332F27	CP.,	220pF
E201	23T81585F29	ELY.,	1μF/50V
C202	08S53332F27	CP.,	220pF
E202	23T81585F29	ELY.,	1μF/50V
C203	08S53332F15	CP.,	22pF
E203	23T90881F24	ELY.,	22μF/16V
C204	08S53332F15	CP.,	22pF
E204	23T90881F24	ELY.,	22μF/16V
C205	08S53332F36	CP.,	1200pF
E205	23T90881F41	ELY.,	100μF/25V
C206	08S53332F23	CP.,	100pF
E206	23T90881F41	ELY.,	100μF/25V
C501	08S53332F13	CP.,	15pF
E501	23T90881F28	ELY.,	100μF/16V
C502	08S53332F13	CP.,	15pF
E502	23T90881F28	ELY.,	100μF/16V
C503	08T57851F09	TF.,	0.047μF
E503	23T42477F06	ELY., (B.P.)	10μF/16V
C504	08T57851F09	TF.,	0.047μF
E504	23T42477F06	ELY., (B.P.)	10μF/16V
E505	23T90881F60	ELY.,	0.47μF/50V
E506	23T90881F60	ELY.,	0.47μF/50V
E507	23T90881F60	ELY.,	0.47μF/50V

Symbol No.	Part No.	Description		
E508	23T90881F60	ELY., 0.47μF/50V		
C509	08T57851F09	TF., 0.047μF		
E509	23S41192U68	ELY., (B.P.) 100μF/10V		
C510	08T57851F09	TF., 0.047μF		
E510	23T90881F28	ELY., 100μF/16V		
C511	08T57851F09	TF., 0.047μF		
E511	23T51232F02	ELY., 1000μF/16V		
C512	08T57851F09	TF., 0.047μF		
E512	23T90881F25	ELY., 33μF/16V		
C513	08S53332F35	CP., 1000pF		
E513	23T90881F64	ELY., 2.2μF/50V		
C514	08S53332F35	CP., 1000pF		
C515	08S53332F35	CP., 1000pF		
C516	08S53332F35	CP., 1000pF		
C520	08T61939F35	CER., 100pF		
C521	08T61939F35	CER., 100pF		
C522	08T61939F35	CER., 100pF		
C523	08T61939F35	CER., 100pF		
C801	08T57851F13	TF., 0.1μF		
E801	23T94587F07	ELY., 6800μF/45V		
C802	08T57851F05	PF., 0.022μF		
E802	23T94587F07	ELY., 6800μF/45V		
C803	08T57851F05	PF., 0.022μF		
E803	23T25051W41	ELY., 3300μF/16V		
C804	08S53332F35	CP., 1000pF		
E804	23T25051W41	ELY., 3300μF/16V		
C805	08S53332F35	CP., 1000pF		
E805	23T90881F22	ELY., 10μF/16V		
C806	08S53332F35	CP., 1000pF		
E806	23T90881F26	ELY., 47μF/16V		
E807	23T90881F22	ELY., 10μF/16V		
E808	23T90881F18	ELY., 220μF/10V		
C809	08T57851F13	TF., 0.1μF		
E809	23T90881F28	ELY., 100μF/16V		
C810	08T57705F55	MYL., 1000pF		
C811	08S53332F23	CP., 100pF		
C812	08S53332F23	CP., 100pF		
C813	08S53332F23	CP., 100pF		
C814	08S53332F35	CP., 1000pF		
C815	08S53332F35	CP., 1000pF		
C816	08S53332F23	CP., 100pF		
C880	08T50579F21	TF., 0.47μF		
C890	08T50579F25	TF., 1μF		
E890	23T25051W76	ELY., 1000μF/50V		
Coils				
L501	24T74372F01	DR08		
L502	24T74372F01	DR08		
L801	25T73270F01	Choke 6A		
L802	25T73270F01	Choke 6A		
L803	25T82812F02	Choke, Filter E1-35		
L804	25T82812F02	Choke, Filter E1-35		
T802	25T25294W01	Choke, Common FR25		

Symbol No.	Part No.	Description		
Thermistors				
TH501	48T60670F01	20Kohm		
TH502	48T60670F01	20Kohm		
TH801	48T60670F01	20Kohm		
Switches				
S201	40T84765F01	SSSJ323 (ST/Mono)		
S202	40T68063F02	SSJ-322A (Fix/Variable)		
Resistors (All resistors are chip, 1/8W, ±5% unless otherwise noted.)				
R201	06S53330F53	1K ohm		
R202	06S53330F53	1K ohm		
R203	06S53330F77	10K ohm		
R204	06S53330F77	10K ohm		
R205	06S53331F02	100K ohm		
R206	06S53331F02	100K ohm		
R207	06S53330F53	1K ohm		
R208	06S53330F53	1K ohm		
R209	06S53331F08	180K ohm		
R210	06S53331F08	180K ohm		
R211	06S53330F53	1K ohm		
R212	06S53330F53	1K ohm		
R214	06S53330F54	1.1K ohm		
R215	06S53330F74	7.5K ohm		
R216	06S53330F74	7.5K ohm		
R217	06S53330F77	10K ohm		
R218	06S53330F77	10K ohm		
R220	06S53330F77	10K ohm		
R223	06T70072F66	3.6K ohm 1/4W		
R224	06T70072F66	3.6K ohm 1/4W		
R225	06T70072F66	3.6K ohm 1/4W		
R226	06T70072F66	3.6K ohm 1/4W		
R501	06S53330F46	510 ohm		
R502	06S53330F46	510 ohm		
R503	06S53330F29	100 ohm		
R504	06S53330F29	100 ohm		
R505	06S53330F77	10K ohm		
R506	06S53330F77	10K ohm		
R507	06S53330F35	180 ohm		
R508	06S53330F35	180 ohm		
R509	06S53330F79	12K ohm		
R510	06S53330F79	12K ohm		
R517	06S53330F59	1.8K ohm		
R518	06S53330F59	1.8K ohm		
R519	06S53330F41	330 ohm		
R520	06S53330F41	330 ohm		
R535	06T71921F03	MPC, 0.1 ohm 5W		
R536	06T71921F03	MPC, 0.1 ohm 5W		
R537	06T71921F03	MPC, 0.1 ohm 5W		
R538	06T71921F03	MPC, 0.1 ohm 5W		

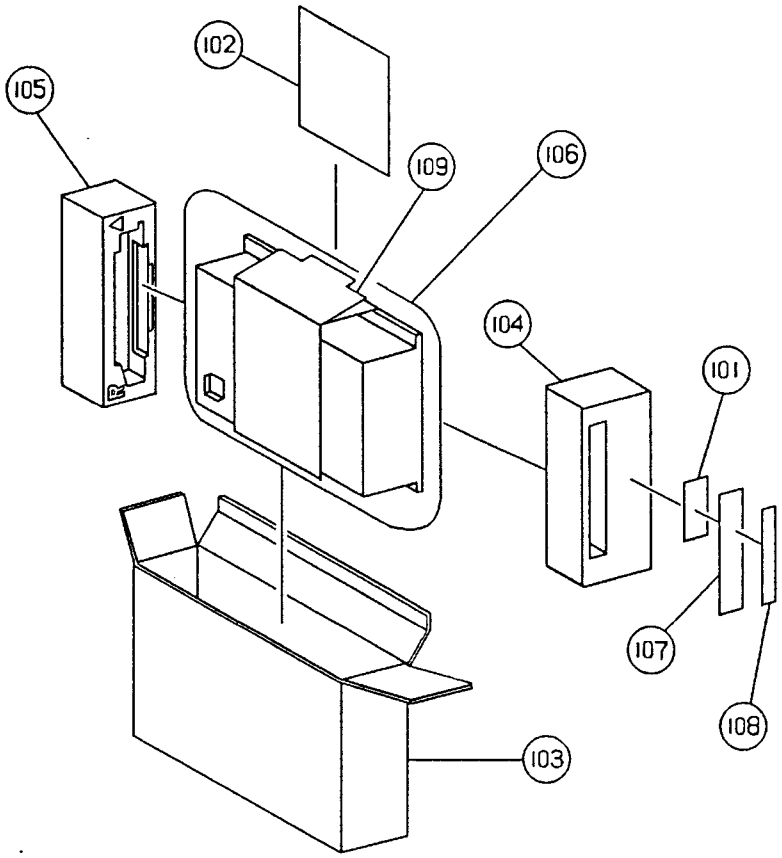
Symbol No.	Part No.	Description		
R539	06T71921F03	MPC, 0.1 ohm 5W		
R540	06T71921F03	MPC, 0.1 ohm 5W		
R541	06T71921F03	MPC, 0.1 ohm 5W		
R542	06T71921F03	MPC, 0.1 ohm 5W		
R543	06T67581F08	C.F., 10 ohm 1/2W		
R544	06T67581F08	C.F., 10 ohm 1/2W		
R545	06T67581F12	C.F., 22 ohm 1/2W		
R546	06T67581F12	C.F., 22 ohm 1/2W		
R547	06T67581F12	C.F., 22 ohm 1/2W		
R548	06T67581F12	C.F., 22 ohm 1/2W		
R551	06S53330F49	680 ohm		
R552	06S53330F49	680 ohm		
R553	06S53330F81	15K ohm		
R554	06S53330F81	15K ohm		
R555	06S53330F81	15K ohm		
R556	06S53330F81	15K ohm		
R557	06S53330F49	680 ohm		
R558	06S53330F49	680 ohm		
R559	06S53330F79	12K ohm		
R560	06S53330F79	12K ohm		
R561	06S53330F53	1K ohm		
R562	06S53330F65	3.3K ohm		
R563	06S53330F53	1K ohm		
R564	06S53330F77	10K ohm		
R565	06S53330F53	1K ohm		
R566	06S53330F77	10K ohm		
R567	06S53330F77	10K ohm		
R568	06S53330F45	470 ohm		
R569	06S53331F02	100K ohm		
R570	06S53330F77	10K ohm		
R580	06S53330F73	6.8K ohm		
R581	06S53330F73	6.8K ohm		
R801	06S53330F43	390 ohm		
R802	06S53330F43	390 ohm		
R803	06T55175F17	M.F., 10 ohm 1/2W		
R804	06T70072F82	3.3 ohm 1/4W		
R805	06T70072F82	3.3 ohm 1/4W		
R806	06T70072F82	3.3 ohm 1/4W		
R807	06T70072F82	3.3 ohm 1/4W		
R808	06T70072F82	3.3 ohm 1/4W		
R809	06T70072F82	3.3 ohm 1/4W		
R810	06T70072F82	3.3 ohm 1/4W		
R811	06T70072F82	3.3 ohm 1/4W		
R812	06T70072F82	3.3 ohm 1/4W		
R813	06T70072F82	3.3 ohm 1/4W		
R814	06T70072F82	3.3 ohm 1/4W		
R815	06T70072F82	3.3 ohm 1/4W		
R816	06T55175F17	M.F., 10 ohm 1/2W		
R817	06T70072F82	3.3 ohm 1/4W		
R818	06T70072F82	3.3 ohm 1/4W		
R819	06T70072F82	3.3 ohm 1/4W		
R820	06T70072F82	3.3 ohm 1/4W		
R821	06T70072F82	3.3 ohm 1/4W		
R822	06T70072F82	3.3 ohm 1/4W		
R823	06T70072F82	3.3 ohm 1/4W		

Symbol No.	Part No.	Description		
R824	06T70072F82	3.3 ohm 1/4W		
R825	06T70072F82	3.3 ohm 1/4W		
R826	06T70072F82	3.3 ohm 1/4W		
R827	06T70072F82	3.3 ohm 1/4W		
R828	06T70072F82	3.3 ohm 1/4W		
R829	06T71921F03	MPC., 0.1 ohm 5W		
R830	06T71921F03	MPC., 0.1 ohm 5W		
R831	06T55177F17	M.F., 10 ohm 1W		
R832	06T55177F17	M.F., 10 ohm 1W		
R833	06S53330F69	4.7K ohm		
R834	06S53330F46	510 ohm		
R835	06S53330F61	2.2K ohm		
R836	06S53330F74	7.5K ohm		
R837	06S53331F06	150K ohm		
R838	06S53330F77	10K ohm		
R839	06S53330F53	1K ohm		
R840	06S53330F65	3.3K ohm		
R841	06S53330F70	5.1K ohm		
R842	06S53330F53	1K ohm		
R843	06S53330F53	1K ohm		
R844	06S53330F76	9.1K ohm		
R845	06S53330F77	10K ohm		
R846	06S53330F77	10K ohm		
R847	06S53331F19	510K ohm		
R848	06S53330F77	10K ohm		
R849	06S53331F02	100K ohm		
R850	06S53330F96	62K ohm		
R851	06S53330F77	10K ohm		
R852	06S53330F84	20K ohm		
R853	06S53330F84	20K ohm		
R854	06S53330F83	18K ohm		
R856	06S53330F70	5.1K ohm		
R857	06S53330F70	5.1K ohm		
R858	06S53330F94	51K ohm		
R859	06S53330F94	51K ohm		
R860	06S53330F70	5.1K ohm		
R861	06S53330F38	240 ohm		
R862	06S53330F38	240 ohm		
R863	06S53330F94	51K ohm		
R864	06S53330F70	5.1K ohm		
R865	06S53330F26	75 ohm		
R866	06S53330F47	560 ohm		
R867	06S53330F47	560 ohm		
R868	06S53330F26	75 ohm		
R869	06S53330F94	51K ohm		
R870	06S53330F70	5.1K ohm		
R871	06S53330F61	2.2K ohm		
R872	06S53330F61	2.2K ohm		
R873	06S53330F61	2.2K ohm		
R874	06S53330F61	2.2K ohm		
R875	06S53330F60	2K ohm		
R879	06S53330F32	130 ohm		
R880	06T70072F54	1.1K ohm 1/4W		
R881	06T70072F54	1.1K ohm 1/4W		
R882	06T70072F54	1.1K ohm 1/4W		

Symbol No.	Part No.	Description
R883	06T70072F54	1.1K ohm 1/4W
R884	06T70072F54	1.1K ohm 1/4W
R885	06T70072F54	1.1K ohm 1/4W
R886	06T70072F54	1.1K ohm 1/4W
R887	06T70072F54	1.1K ohm 1/4W
R888	06S53330F77	10K ohm
R890	06T55175F17	M.F., 10 ohm 1/2W
R891	06T55175F17	M.F., 10 ohm 1/2W
R892	06T55175F17	M.F., 10 ohm 1/2W
R893	06T55175F17	M.F., 10 ohm 1/2W
R894	06T55175F17	M.F., 10 ohm 1/2W
R895	06T55175F17	M.F., 10 ohm 1/2W
R896	06T55175F17	M.F., 10 ohm 1/2W
R897	06T55175F17	M.F., 10 ohm 1/2W
Volumes		
VR201	18T16289W01	Rotary 50K ohm
VR501	18T45040F05	ADJ., 470 ohm/0.3W
VR502	18T45040F05	ADJ., 470 ohm/0.3W
VR801	18B44064J02	SOL., 4.7K ohm/1/2W
Miscellaneous		
C517	08T90316F21	CAP., TF. 0.022µF
C518	08T90316F21	CAP., TF. 0.022µF
D801	48T80987F01	Diode., FMG22S
D802	48T80987F02	Diode., FMG22R
ET501	29T73269F02	Speaker Output Terminals
ET801	29T73268F02	Power Supply Terminals
ET802	01T74571F01	Remote Turn-On Connector
F801	65S58596F08	Auto, Fuse 30A
F802	65S58596F08	Auto, Fuse 30A
IC501	51T94569F01	IC, µPC1298V
IC502	51T94569F01	IC, µPC1298V
JK201	09T70753F07	RCA Input Jacks
LD801	48T72180F01	LED, 2-Color (GRN/ORG)
LD802	48T72180F01	LED, 2-Color (GRN/ORG)
Q503	48T64376F01	TR., 2SC3423
Q504	48T64376F01	TR., 2SC3423
Q505	48T69176F01	TR., 2SC3421
Q506	48T69176F01	TR., 2SC3421
Q507	48T69177F01	TR., 2SA1358
Q508	48T69177F01	TR., 2SA1358
Q509	48T58609F01	TR., 2SC3182
Q510	48T58609F01	TR., 2SC3182
Q511	48T58610F01	TR., 2SA1265
Q512	48T58610F01	TR., 2SA1265
Q513	48T58609F01	TR., 2SC3182
Q514	48T58609F01	TR., 2SC3182
Q515	48T58610F01	TR., 2SA1265
Q516	48T58610F01	TR., 2SA1265

Symbol No.	Part No.	Description
Q801	48T16440W01	TR., 2SC4024
Q802	48T47613F01	TR., 2SD1065
Q803	48T47613F01	TR., 2SD1065
Q804	48T47613F01	TR., 2SD1065
Q805	48T47613F01	TR., 2SD1065
Q806	48T16440W01	TR., 2SC4024
Q807	48T47613F01	TR., 2SD1065
Q808	48T47613F01	TR., 2SD1065
Q809	48T47613F01	TR., 2SD1065
Q810	48T47613F01	TR., 2SD1065
T801	25T25295W01	TRANS, DC-DC
TH802	48T60670F01	Thermistor, 20K ohm

Packing Method View



Packing Assembly Parts List

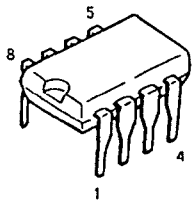
Symbol No.	Part No.	Description		
101	01V21800W25	Assy., Kit Installation		
●102	68P10791W87	Owners, Manual		
▲102	68P10791W94	Owners, Manual		
●103	56S20232W13	Carton, Packing (IND)		
▲103	56S20232W97	Carton, Packing (IND)		
104	56D13222W01	Tray, Packing (L)		
105	56D13222W02	Tray, Packing (R)		
106	56B72811F08	Sack, Polyethylene		
107	01T73276F01	Assy, Kit Wire Power		

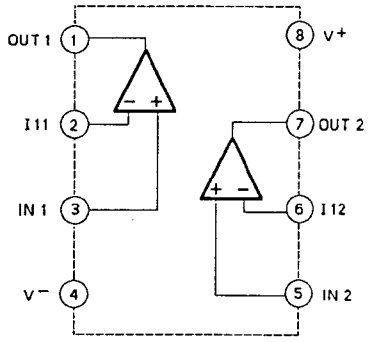
Symbol No.	Part No.	Description		
108	01T95123F01	Assy., Kit Wire (2P)		
109	56B13223W01	Pad, Packing		

NOTE: ● : For North American Model Only (AO)
▲ : For General Foreign Model Only (GO)
Others: Common

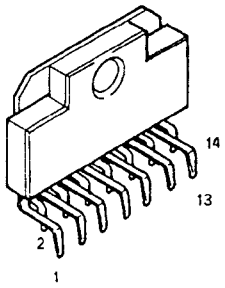
Semi - Conductor Lead Identifications

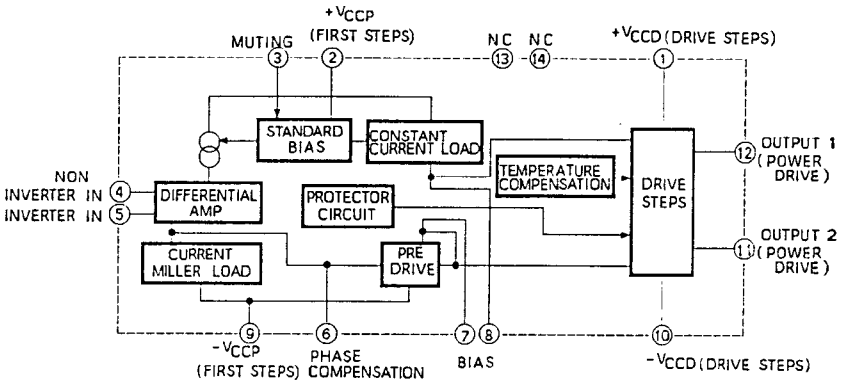
μPC4570C : IC201, 202



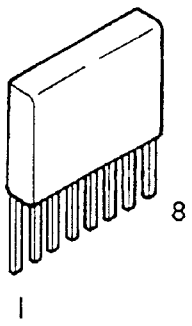


μPC1298V : IC501, 502



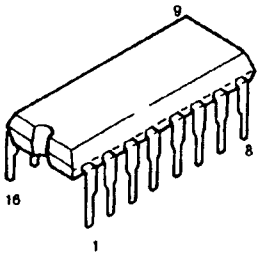


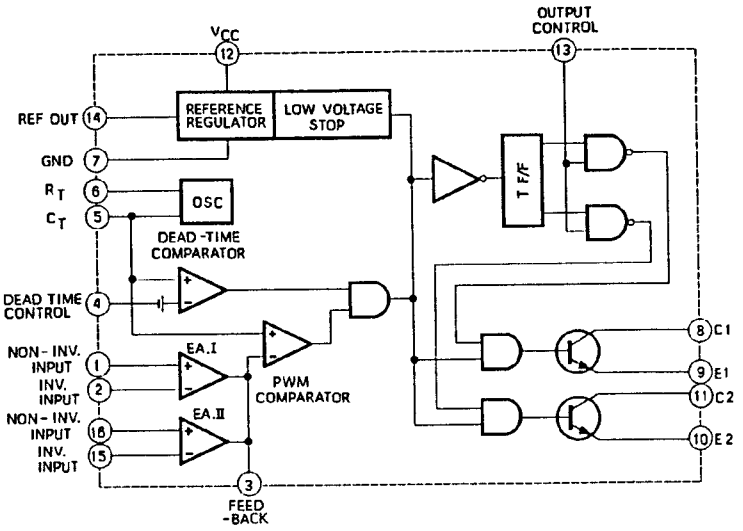
82675F02 : IC503



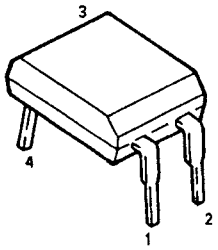
Pin No.	Pin Name
1	Voltage Hold Cap +
2	Ground
3	Power On Mute Cap –
4	Noise Exclude Cap –
5	Power On Mute Cap +
6	Output
7	Input
8	Noise Exclude Cap +

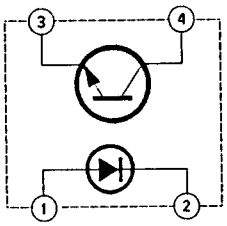
μPC494C : IC801



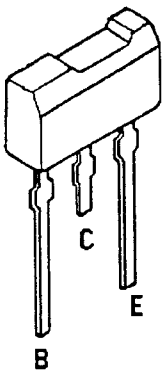


PS2401 : IC802

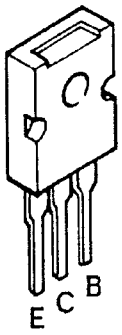




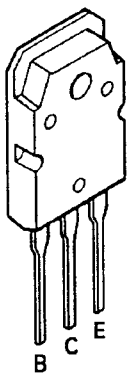
2SD1996 : Q501, 502, 525



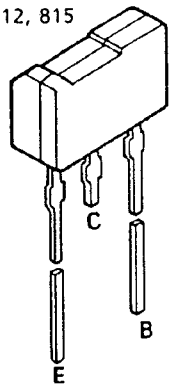
2SC3423 : Q503, 504
2SC3421 : Q505, 506
2SA1358 : Q507, 508, 813



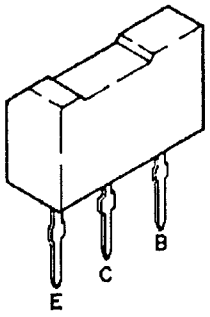
2SC3182 : Q509, 510, 513, 514
2SA1265 : Q511, 512, 515, 516



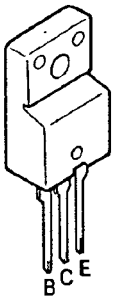
2SC4036 : Q517, 518
2SA1561 : Q519, 520, 523, 814
2SC4038 : Q521, 522, 811, 812, 815



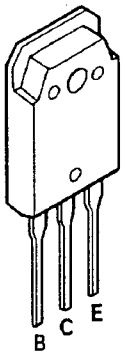
2SB1076M : Q524



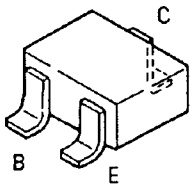
2SC4024 : Q801, 806



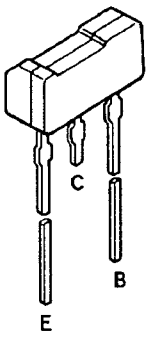
2SD1065 : Q802~805, 807~810

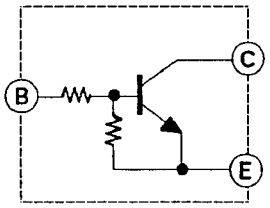


2SA1036K : Q816, 819
2SC2411K : Q817, 818



UN6211 : Q820





DTC114K : Q821, 822